

Applicants: Sprecher et al.

Serial No.: 09/892,949

Filed: June 26, 2001

For: NUCLEIC ACID ENCODING CYTOKINE RECEPTOR ZCYTOR17 (As Amended)

In the Claims

Please amend claims 1, 2, 5, 6, 9, 12 and 14.

Please cancel claims 3, 4, 18-23 and 25-32, without prejudice.

Please add new claims 33-44.

Per 37 C.F.R. §1.121, the current status of all the claims in the present application is presented below, amended claims are noted to indicated changes made and the text of pending claims not being amended are presented clean. Amendments to the following are indicated by underlining what has been added and striking-through what has been deleted.

Claim 1 (currently amended): An isolated polynucleotide encoding a polypeptide, wherein the encoded polypeptide comprises a sequence of amino acid residues that is selected from the group consisting of:

- (a) the amino acid sequence as shown in SEQ ID NO:2 from amino acid number 20 (Ala) to amino acid number 227 (Pro);
- (b) the amino acid sequence as shown in SEQ ID NO:2 from amino acid number 20 (Ala) to amino acid number 519 (Glu);
- (c) the amino acid sequence as shown in SEQ ID NO:2 from amino acid number 20 (Ala) to amino acid number 543 (Leu);
- (d) the amino acid sequence as shown in SEQ ID NO:2 from amino acid number 544 (Lys) to amino acid number 732 (Val);
- ~~(e) the amino acid sequence as shown in SEQ ID NO:46 from amino acid number 544 (Lys) to amino acid number 649 (Ile);~~
- ~~(f)(e) the amino acid sequence as shown in SEQ ID NO:2 from amino acid number 20 (Ala) to amino acid number 732 (Val); and~~
- ~~(g) the amino acid sequence as shown in SEQ ID NO:46 from amino acid number 20 (Ala) to amino acid number 649 (Ile);~~
- ~~(h)(f) the amino acid sequence as shown in SEQ ID NO:2 from amino acid number 1 (Met) to amino acid number 732 (Val); and~~
- ~~(i) the amino acid sequence as shown in SEQ ID NO:46 from amino acid number 1 (Met) to amino acid number 649 (Ile).~~

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Claim 2 (currently amended): An isolated polynucleotide comprising a sequence selected from the group consisting of:

- (a) a polynucleotide as shown in SEQ ID NO:1 from nucleotide number 228 to amino acid number 851;
- (b) a polynucleotide as shown in SEQ ID NO:1 from nucleotide number 228 to amino acid number 1727;
- (c) a polynucleotide as shown in SEQ ID NO:1 from nucleotide number 228 to amino acid number 1799;
- (d) a polynucleotide as shown in SEQ ID NO:1 from nucleotide number 1800 to amino acid number 2366;
- (e) ~~a polynucleotide as shown in SEQ ID NO:45 from nucleotide number 1791 to amino acid number 2108;~~
- (f) ~~(e)~~ a polynucleotide as shown in SEQ ID NO:1 from nucleotide number 228 to amino acid number 2366;
- (g) ~~a polynucleotide as shown in SEQ ID NO:45 from nucleotide number 219 to amino acid number 2108;~~
- (h) ~~(f)~~ a polynucleotide as shown in SEQ ID NO:1 from nucleotide number 171 to amino acid number 2366; and
- (i) ~~a polynucleotide as shown in SEQ ID NO:45 from nucleotide number 162 to amino acid number 2108; and~~
- (j) (g) a polynucleotide sequence complementary to (a) through (i)(f).

Claims 3-4 (canceled)

Claim 5 (currently amended): An isolated polynucleotide according to claim 1, wherein the encoded polypeptide has activity as measured by cell proliferation, activation of transcription of a reporter gene, or wherein the encoded polypeptide further binds to an antibody,

wherein the antibody is raised to a polypeptide comprising a sequence of amino acids selected from the group consisting of:

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(a) the polypeptide comprising amino acid number 20 (Ala) to 227 (Pro) of SEQ ID NO:2;

(b) the polypeptide comprising amino acid number 20 (Ala) to 519 (Glu) of SEQ ID NO:2;

(c) the polypeptide comprising amino acid number 20 (Ala) to 543 (Leu) of SEQ ID NO:2;

(d) the polypeptide comprising amino acid number 544 (Lys) to 732 (Val) of SEQ ID NO:2;

~~(e) the polypeptide comprising amino acid number 544 (Lys) to 649 (Ile) of SEQ ID NO:46;~~

~~(f)(e)~~ the polypeptide comprising amino acid number 20 (Ala) to 732 (Val) of SEQ ID NO:2; and

~~(g) the polypeptide comprising amino acid number 20 (Ala) to 649 (Ile) of SEQ ID NO:46;~~

~~(h)(f)~~ the polypeptide comprising amino acid number 1 (Met) to 732 (Val) of SEQ ID NO:2; and

~~(i) the polypeptide comprising amino acid number 1 (Met) to 649 (Ile) of SEQ ID NO:46, and~~

wherein the binding of the antibody to the isolated polypeptide is measured by a biological or biochemical assay including radioimmunoassay, radioimmuno-precipitation, Western blot, or enzyme-linked immunosorbent assay.

Claim 6 (currently amended): An expression vector comprising the following operably linked elements:

a transcription promoter;

a DNA segment encoding a polypeptide comprising an amino acid sequence as shown in SEQ ID NO:2 from amino acid number 20 (Ala) to 732 (Val)~~or an amino acid sequence as shown in SEQ ID NO:46 from amino acid number 20 (Ala) to 649 (Ile); and~~

a transcription terminator,

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wherein the promoter is operably linked to the DNA segment, and the DNA segment is operably linked to the transcription terminator.

Claim 7 (original): An expression vector according to claim 6, further comprising a secretory signal sequence operably linked to the DNA segment.

Claim 8 (original): A cultured cell comprising an expression vector according to claim 7, wherein the cell expresses a polypeptide encoded by the DNA segment.

Claim 9 (currently amended): An expression vector comprising the following operably linked elements: according to claim 6, wherein

a transcription promoter;

~~the~~ a DNA segment ~~encodes~~encoding a polypeptide comprising an amino acid sequence as shown in SEQ ID NO:2 from amino acid number 20 (Ala) to 227 (Pro); or as shown in SEQ ID NO:2 from amino acid number 20 (Ala) to 519 (Glu); and

a transcription terminator,

wherein the promoter, DNA segment, and terminator are operably linked.

Claim 10 (original): An expression vector according to claim 9, further comprising a secretory signal sequence operably linked to the DNA segment.

Claim 11 (original): An expression vector according to claim 9, wherein the polypeptide further comprises a transmembrane domain consisting of residues 520 (Ile) to 543 (Leu) of SEQ ID NO:2.

Claim 12 (currently amended): An expression vector according to claim 9 wherein the polypeptide further comprises an intracellular domain consisting of residues 544 (Lys) to 732 (Val) of SEQ ID NO:2, ~~or residues 544 (Lys) to 649 (Ile) of SEQ ID NO:46.~~

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Claim 13 (original): A cultured cell into which has been introduced an expression vector according to claim 9, wherein the cell expresses a soluble receptor polypeptide encoded by the DNA segment.

Claim 14 (currently amended): A DNA construct encoding a fusion protein, the DNA construct comprising:

a first DNA segment encoding a polypeptide comprising a sequence of amino acid residues selected from the group consisting of:

(a) the amino acid sequence of SEQ ID NO:2 from amino acid number 1 (Met), to amino acid number 19 (Ala);

~~(b) the amino acid sequence of SEQ ID NO:54 from amino acid number 1 (Met), to amino acid number 32 (Ala);~~

~~(e)(b)~~ the amino acid sequence of SEQ ID NO:2 from amino acid number 20 (Ala), to amino acid number 227 (Pro);

~~(e)(c)~~ the amino acid sequence of SEQ ID NO:2 from amino acid number 20 (Ala), to amino acid number 519 (Glu);

~~(e)(d)~~ the amino acid sequence as shown in SEQ ID NO:2 from amino acid number 20 (Ala) to amino acid number 543 (Leu);

~~(f)(e)~~ the amino acid sequence as shown in SEQ ID NO:2 from amino acid number 520 (Ile) to amino acid number 543 (Leu);

~~(g)(f)~~ the amino acid sequence as shown in SEQ ID NO:2 from amino acid number 544 (Lys) to amino acid number 732 (Val); and

~~(h) the amino acid sequence as shown in SEQ ID NO:46 from amino acid number 544 (Lys) to amino acid number 649 (Ile);~~

~~(i)(g)~~ the amino acid sequence as shown in SEQ ID NO:2 from amino acid number 20 (Ala) to amino acid number 732 (Val); and

~~(j) the amino acid sequence as shown in SEQ ID NO:46 from amino acid number 20 (Ala) to amino acid number 649 (Ile); and~~

at least one other DNA segment encoding an additional polypeptide,

wherein the first and other DNA segments are connected in-frame; and

wherein the first and other DNA segments encode the fusion protein.

Amendment and Response

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Claim 15 (original): An expression vector comprising the following operably linked elements:

a transcription promoter;

a DNA construct encoding a fusion protein according to claim 14; and

a transcription terminator,

wherein the promoter is operably linked to the DNA construct, and the DNA construct is operably linked to the transcription terminator.

Claim 16 (previously amended): A cultured cell comprising an expression vector according to claim 15, wherein the cell expresses the fusion protein encoded by the DNA construct.

Claim 17 (previously amended): A method of producing a fusion protein comprising:

culturing a cell according to claim 16; and

isolating the fusion protein produced by the cell.

Claims 18-23 (canceled)

Claim 24 (original): A method of producing a polypeptide comprising:

culturing a cell according to claim 13; and

isolating the polypeptide produced by the cell.

Claims 25-32 (canceled)

Claim 33 (new): An isolated soluble receptor polypeptide comprising amino acid residues 20-519 of SEQ ID NO:2.

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Claim 34 (new): The isolated soluble receptor polypeptide of claim 33 wherein the isolated soluble receptor polypeptide is fused to an immunoglobulin heavy chain constant region.

Claim 35 (new): The isolated soluble receptor polypeptide of claim 34 wherein the immunoglobulin heavy chain constant region is a human immunoglobulin Fc4 fragment.

Claim 36 (new): An isolated polypeptide comprising amino acid residues 20-732 of SEQ ID NO:2.

Claim 37 (new): An isolated polynucleotide encoding a soluble receptor polypeptide wherein the soluble receptor polypeptide comprises amino acid residues 20-519 of SEQ ID NO:2.

Claim 38 (new): The isolated polynucleotide of claim 37 wherein the soluble receptor polypeptide is fused to an immunoglobulin heavy chain constant region.

Claim 39 (new): The isolated polynucleotide of claim 38 wherein the immunoglobulin heavy chain constant region is a human immunoglobulin Fc4 fragment.

Claim 40 (new): An expression vector comprising the following operably linked elements:

a transcription promoter;

a DNA segment encoding a soluble receptor polypeptide comprising amino acid residues 20-519 of SEQ ID NO:2; and

a transcription terminator,

wherein the promoter is operably linked to the DNA segment, and the DNA segment is operably linked to the transcription terminator.

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Claim 41 (new): The expression vector of claim 40 further comprising a secretory signal sequence operably linked to the DNA segment.

Claim 42 (new): The expression vector of claim 40 further comprising a immunoglobulin heavy chain constant region operably linked to the DNA segment.

Claim 43 (new): The expression vector of claim 42 wherein the immunoglobulin heavy chain constant region is a human immunoglobulin F_c4 fragment.

Claim 44 (new): A cultured cell comprising an expression vector according to claim 40, wherein the cell expresses the soluble receptor polypeptide encoded by the DNA segment.